Space Weather Forecast

Issued on Tuesday, 16 November 2021 at 12:29 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: G1/Minor Geomagnetic Storms likely Day 1 (16th).
Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar Activity was very low, with no notable flares in the last 24 hours. There are three small and magnetically simple sunspot regions on the Earth-facing disc, including a new region which rotated onto the disc in the last 24 hours. No Earth-directed coronal mass ejections (CMEs) were observed.

Solar Wind / Geomagnetic Activity: The solar wind speed was initially at background levels, but increased during the first half of the period becoming elevated or strong from around midnight and continuing to be elevated or strong since that time. The Earth also moved through a notably dense region of solar wind during the first half of this increase. Total magnetic field strength also became strong from a weak base through the period as the Earth came under the influence of this faster wind, but became moderate or weak since just after midnight UTC time. The important north-south component varied frequently between positive (northward) and negative (southward) values, but with the strongest fields in a northward direction. Geomagnetic activity was mainly Quiet, but was active between 1800 on the 15th and 0600 on the 16th.
Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Solar activity is expected to be mainly very low, with a slight chance of C-class flares from the three sunspot regions.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Solar wind speeds are expected to remain elevated or strong through days 1 and much of day 2 (16th and 17th November) then declining through days 3 and 4. Geomagnetic Activity is expected to be Unsettled to Active with a likelihood of G1/Minor Storm at first, easing to Unsettled to Active, with a decreasing chance of G1 Minor storm intervals by day 2 (17th). Activity then easing to be Quiet to Unsettled day 3 (18th) onward.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background levels with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	60	20	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	1	1	1	1
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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